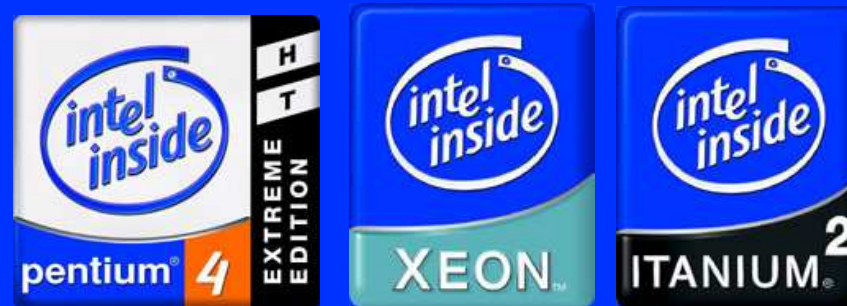


Intel® 64-bit Platforms: Platform Features, Software Tools, Developer Resources



Route64 Training Tour 2005
February - May 2005

Agenda

- **Introduction and Positioning of Intel® 64-bit platforms**
- **Intel® High-end Desktop and Workstation platforms**
- **Intel® Server platforms**
- **Intel® Software Tools**
- **Developer Resources**

Intel Architecture Shift

Circa

1972

- 8-bit software appeared; 8080 processor

1978

- 16-bit software transition: 8086/88 processor

1985

- 32-bit software transition began: 80386 processor

2001

- 64-bit software transition started: Intel® Itanium® processor

2002

- 64-bit ramp begins: Intel® Itanium® 2 platforms

2004

- 64-bit Intel® Xeon™ processor - Intel delivering 64-bit capability for all market segments

**Transition From 16bit To 32bit
Applications Took Over 10 Years**

64-bit Intel® Xeon™ Processor: Ideal Solution for Dual Processor 64-bit Graphics Workstations

RISC workstations



IA-32
architecture

Higher
Performance at
Lower Cost
TODAY

Extend
Capability As
Needed



64-bit Intel®
Xeon™ processor

PC World:

Nathan Brookwood, an analyst with research firm Insight64 in Saratoga, California. "What you have is this massive migration from RISC to x86 and x86 with 64-bit extensions," he says. "Now that Xeon has 64-bit capabilities, that will probably ice the cake."

<http://www.pcworld.com/news/article/0,aid,117934,00.asp>

Sep 27, 2004

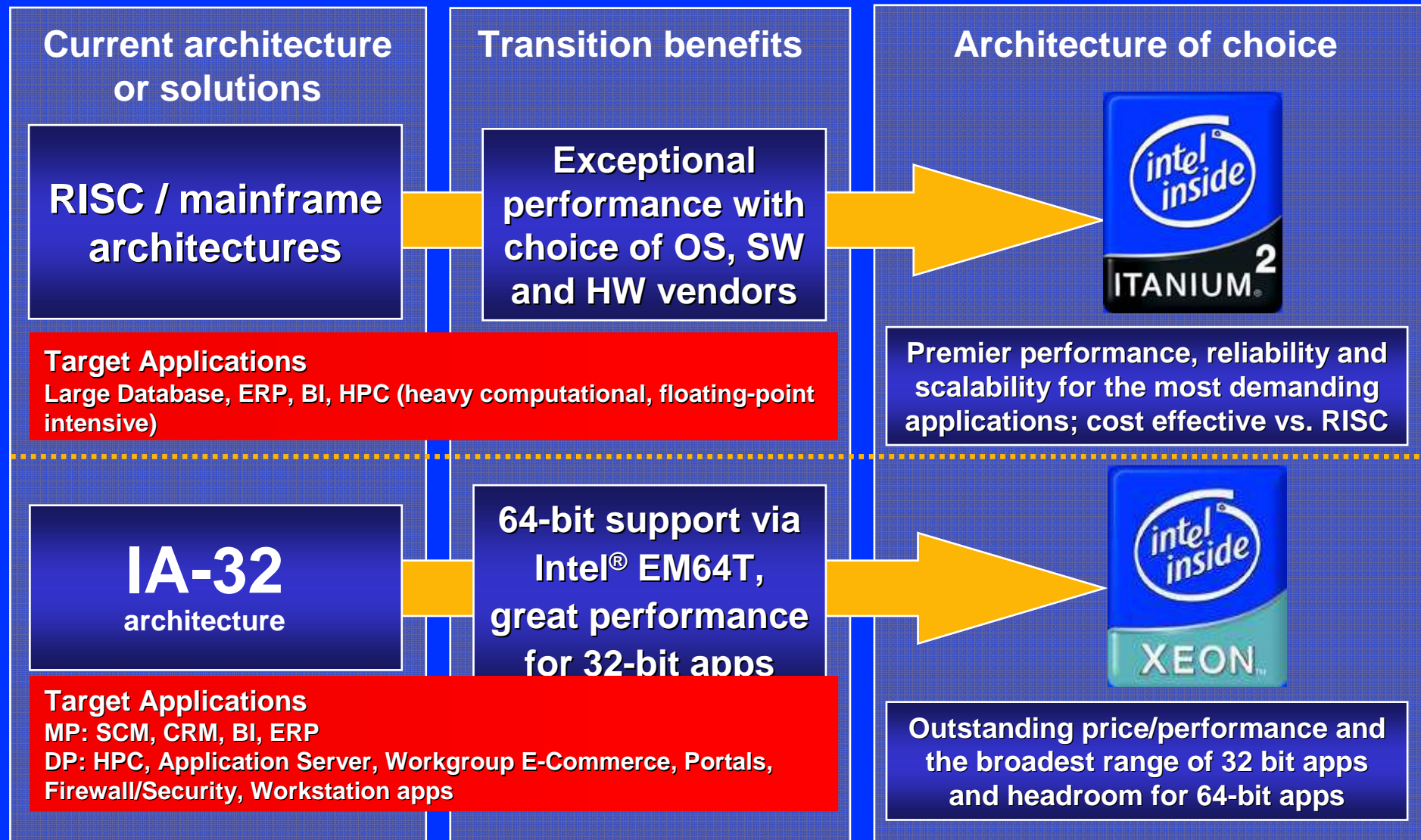
Route64
Client Platforms



HP xw6200

Two 64-bit Server Architectures

Very Different Usages



Intel Strategy – Driving Thread Parallelism

- HT:
 - Better parallelism via utilization of existing resources
- Dual Core:
 - Powerful evolution of HT that provides 2 full execution cores in a single processor
- Future Multi-core:
 - Continued processor level parallelism with ≥ 2 cores in a single processor
- Delivering in **Volume**:

	2004	2005	2006*
Desktop Performance	65% HT	Shipping dual core	>70% dual core
Servers	100% HT	Shipping dual core	>85% dual/multi-core
Mobile Performance	Mobile Optimized Micro-Arch	Shipping dual core	>70% dual core

* data is projected run rate exiting the year. Source: Intel



Microsoft* licensing per physical slot

*Third party brands and names are the property of their respective owners

Agenda

- Introduction and Positioning of Intel® 64-bit platforms
- Intel® High-end Desktop and Workstation platforms
- Intel® Server platforms
- Intel® Software Tools
- Developer Resources

The DP Workstation Platform: Intel® E7525 Chipset

Next Generation
Graphics

64-bit Intel®
Xeon™ processor

PCI Express

Faster DDR2
Memory

Major Architectural
Enhancements (SSE3,
HT)

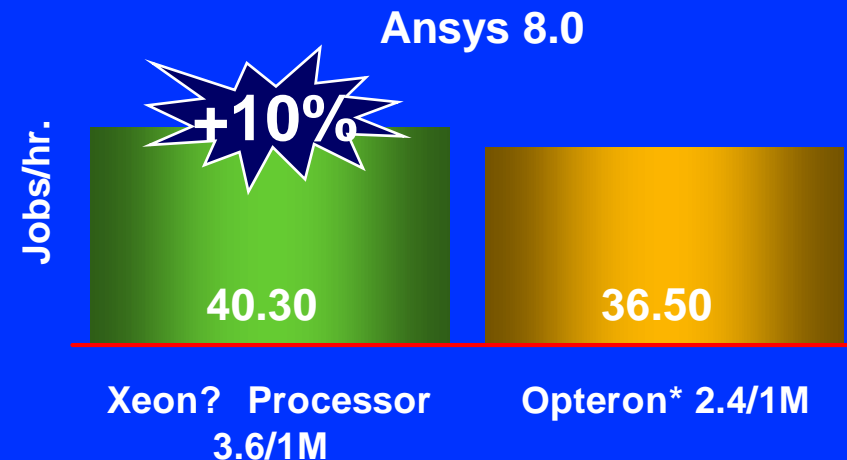
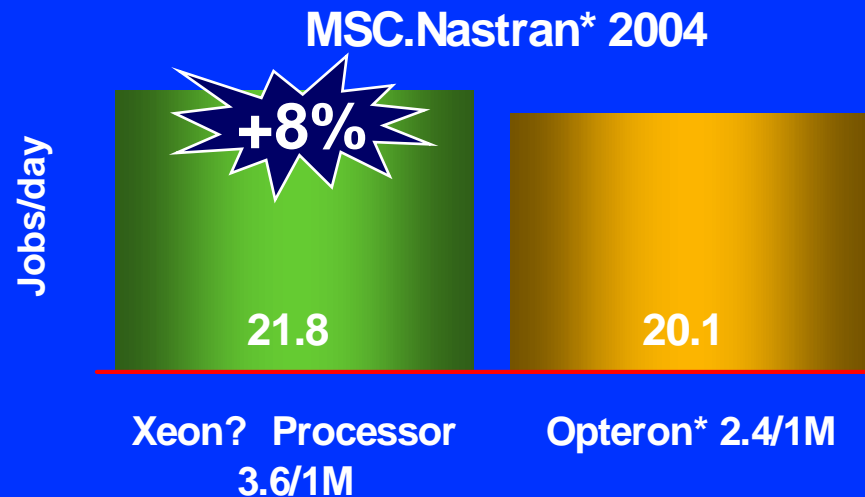
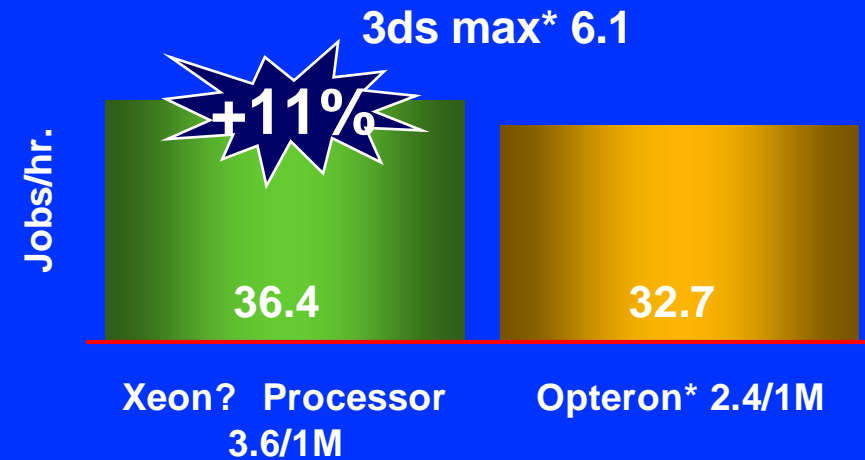
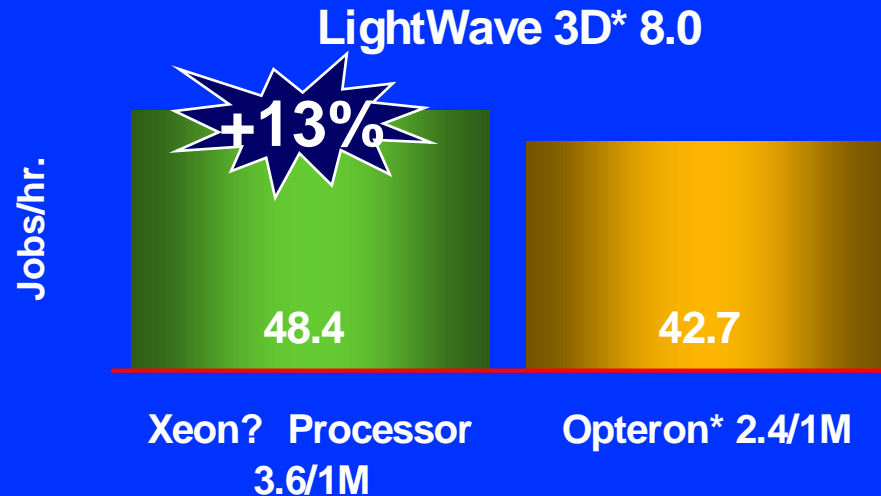


Reduced
Power Consumption

Faster System Bus
(800 MHz)

Significant new technologies deliver performance,
improved TCO, and headroom

64-bit Intel® Xeon™ processor-based Workstation Leadership -- DCC, MCAE Examples



Early measurements by Intel on pre-production hardware.

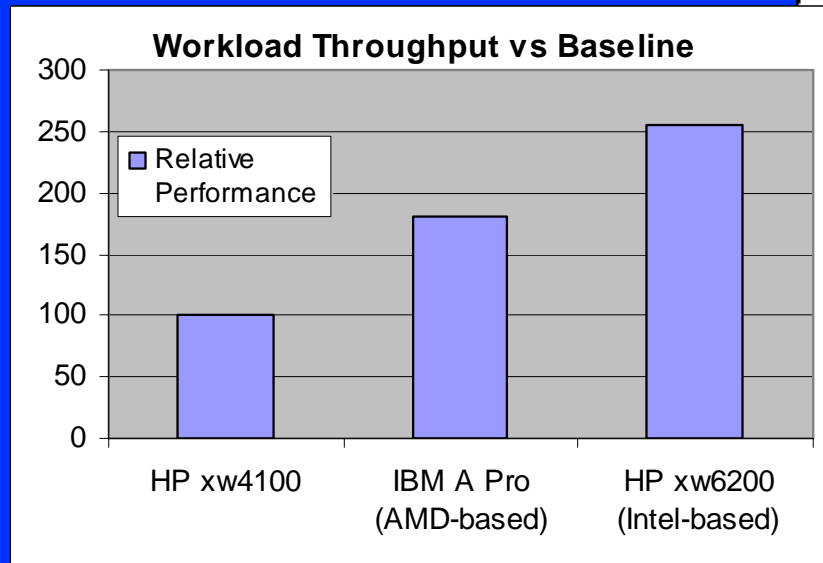
Intel® Xeon™ processor 3.60 GHz, Coyote WS400 E7525 CRB BIOS 38. 4GB DDR2-400 –1 GB x 4 CAS333. nVidia® Quadro® FX3400 256MB PCIe x16 driver 61.60. Microsoft® Windows® XP Professional SP1. (1-2)36GB Seagate® U320 SCSI with Adaptec® 29320 adapter.

AMD® Opteron® processor 2.4 GHz, Tyan® S2885 AMD® 81x1 BIOS 2.02. 4GB DDR400R – 1 GB x 4 CAS333. nVidia® Quadro® FX3000 256MB AGP 8x driver 61.60. Microsoft® Windows® XP Professional SP1. (2)36GB Seagate® U320 SCSI with Adaptec® 29320 adapter

*Third party brands and names are the property of their respective owners

Intel Architecture Multi-Tasking Leadership

- Few workstations used for only one purpose: multi-tasking is key for productivity
- Workstation 2004, CSA Research, 2004
“...inherent advantages of simultaneous multi-tasking and the maturity of the 3rd generation Intel Netburst architecture”



Infoworld: Xeon™ processor vs. Opteron

“Intel's Xeon-based workstations are **much faster** than workstations based on AMD's Opteron when it comes to **heavy multitasking**”

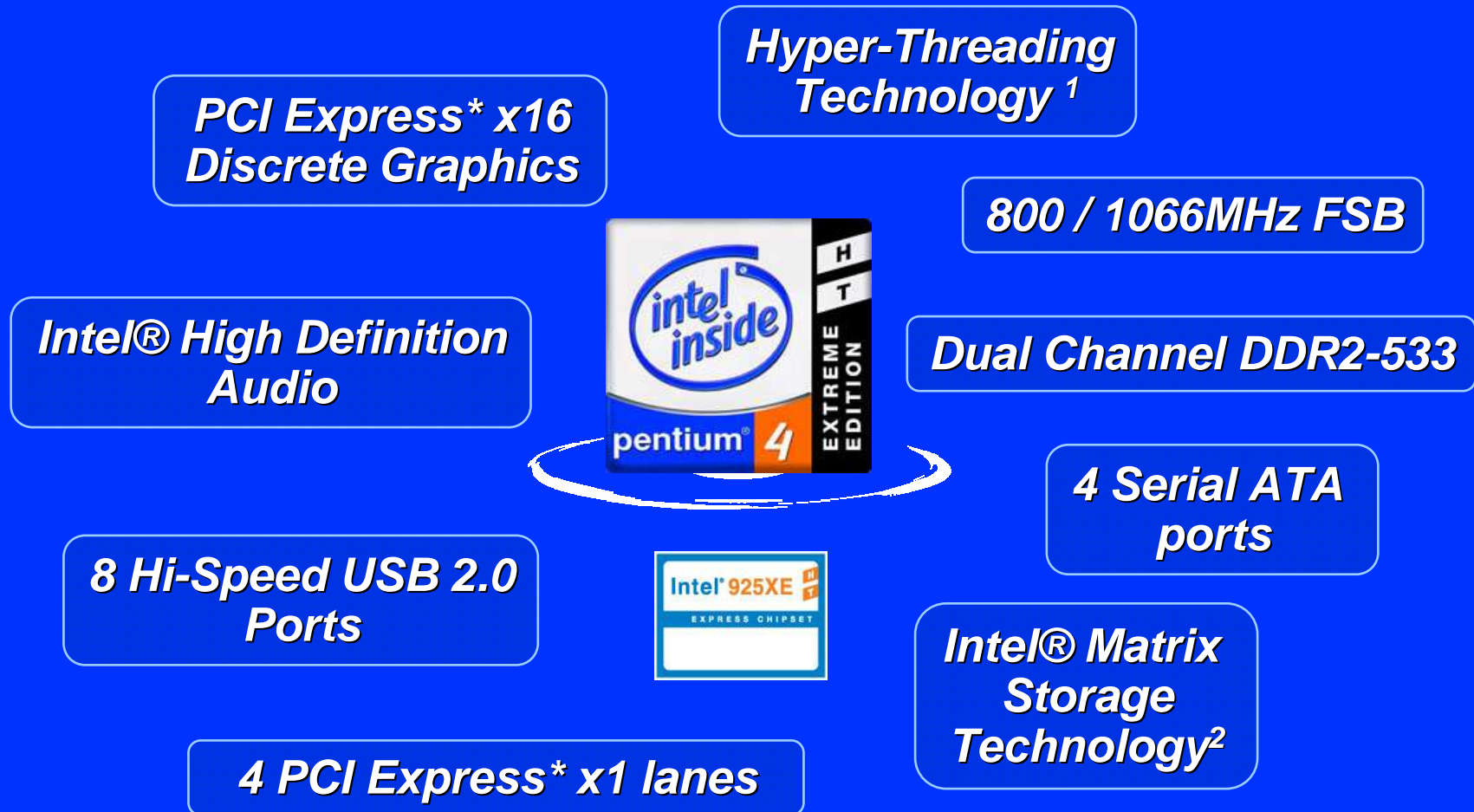
“...**the Opteron stopped**. It was effectively shut down by the same multitasking load that the two **Xeons performed with ease**. In the clean environment, it still performed at less than half the speed of the older and allegedly less-capable Xeons.”

By Wayne Rash, Randall C. Kennedy Aug'04

http://reviews.infoworld.com/article/04/08/13/33TCworkstation_1.html

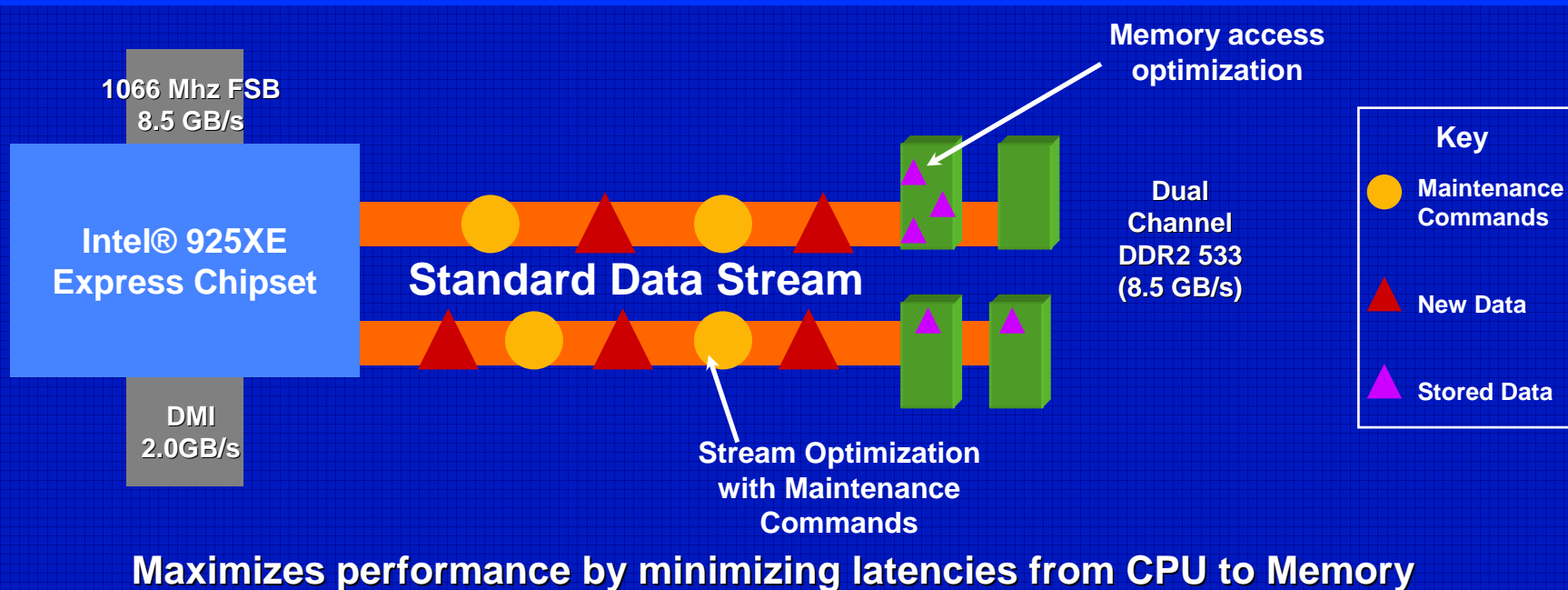
WS consolidation (“single glass”) will continue to increase WS End User multi-tasking requirements

Intel® Pentium® 4-based Performance Desktop Platform: Intel® 925XE Express Chipset



The Intel® 925XE Express Chipset provides leading edge technologies & performance

Intel's Unique Memory Architecture



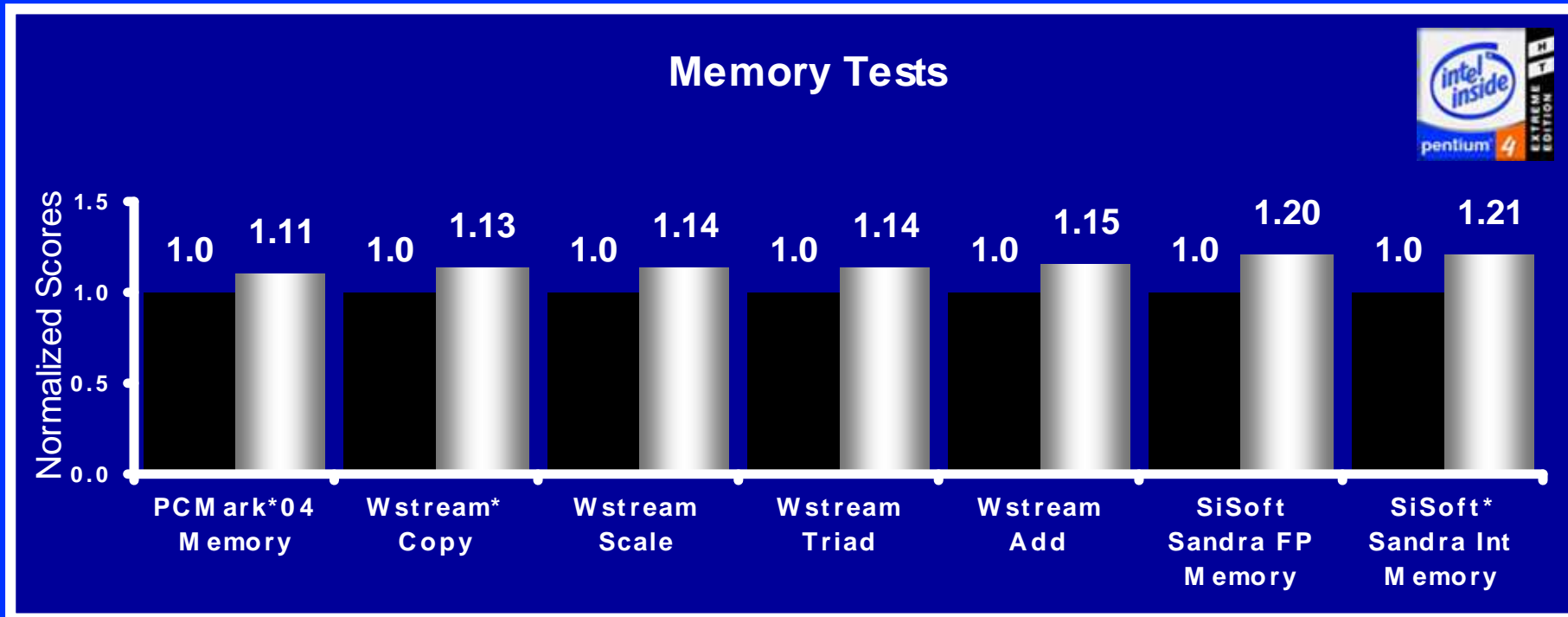
- Opportunistic maintenance commands inserted into standard data path
- Rearranges data stored in memory
- Enables highest platform performance

High-performance solution for a broad range of computing needs

Intel® 925XE Memory Performance Improvement

Intel® Pentium® 4 Processor Extreme Edition with HT Technology 3.40 GHz 800FSB and 4-4-4 memory

Intel® Pentium® 4 Processor Extreme Edition with HT Technology 3.46 GHz 1066FSB and 3-3-3 memory



Intel's new Extreme Platform delivers double-digit gains in memory performance

[†]Based on Intel Pentium 4 Processor Extreme Edition with HT Technology 3.46 GHz paired with Intel 925XE chipset compared to Intel Pentium 4 Processor Extreme Edition with HT Technology 3.40 GHz.

Source: Intel. Configuration: **Intel® Pentium® 4 Processor Extreme Edition with HT Technology 3.40 GHz** – 1GB (2x512MB) DDR2-533 PC4300 CL4-4-4-12 Micron MT16HTF6464AG-53EB2; **Intel® Pentium® 4 Processor Extreme Edition with HT Technology 3.46 GHz** – 1GB (2x512MB) DDR2-533 PC4300 CL3-3-3-8 Corsair CM2X512-4300C3; **All Platforms** - Intel® D925XECV2 Desktop Board, Intel® Application Accelerator RAID Edition 4.5 with RAID ready, Intel® Chipset Software Installation Utility 6.0.1.1002; Seagate® Barracuda® 7200 Serial ATA 160GB Hard Drive - ST3160023AS; ATI® Radeon® X800XT Platinum Edition PCIe with Windows® XP driver ATI Catalyst 4.11 (beta 8.07) Driver Suite: display driver version: 6.14.10.6490; Integrated Marvell® Yukon® 88E8050 PCI Express Gigabit Ethernet; DirectX® 9.0c, Windows® XP Build 2600 SP2.

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance.

*Third party brands and names are the property of their respective owners

Agenda

- Introduction and Positioning of Intel® 64-bit platforms
- Intel® High-end Desktop and Workstation platforms
- **Intel® Server platforms**
- Intel® Software Tools
- Developer Resources

Intel® Enterprise Server Platforms

Multi-processor (MP) platforms

Intel® Itanium® 2-based MP Platforms

Itanium® 2-9M
Intel® E8870/Enabled

Next generation MP

Montecito/Montvale
Intel® E8870/Enabled

Common Platform Arch.

Tukwila
Future chip set

Intel® Xeon™ Processor MP-based Platforms

Xeon™ Processor MP
Enabled chip sets

64-bit Intel® Xeon™ processor MP-based platforms

Cranford/Potomac/Paxville/Tulsa
Intel® Twin Castle/Enabled

Common Platform Arch.

Whitefield
Future chip set

Dual-processor (DP) platforms

Intel® Itanium® 2-based DP + LV Platforms

Itanium® 2 (+ LV)/Fanwood (+LV)
Intel® E8870/Enabled

Next generation DP/LV

Millington (+ LV)/
DP Montvale (+ LV)
Intel® E8870/Enabled

Future Platform

Dimona (+ LV)
Future chip set

64-bit Intel® Xeon™ Processor-based Platforms

Xeon™ Processor/Irwindale (2005)
Intel® E7520 and Intel E7320

Next Gen. DP

Next gen. chip set

Future DP

Future chip set

Current Platforms

2005-2006+

Future

Mitigate risk with Intel's Proven Track Record; Grow your business with Innovative Platforms; Reduce costs with Optimized Solutions



*Third party brands and names are the property of their respective owners

All products, dates and information are preliminary and subject to change without notice.

Features in Intel® Xeon™ Processor Family Platforms



2003 & Prior Enhancements

Hyper-Threading Technology
Intel® Netburst™ micro-
architecture
SSE & SSE2 instructions



2004 Enhancements

New SSE3 Instructions
800MHz FSB
PCI Express*
64-bit Intel® Xeon™ processor
Power Management
- Demand Based Switching (DBS)
DDR2 Memory
- Higher capacity & performance w/
lower power

Future Enhancements

Virtualization
Dual core CPUs
Fully buffered DIMMs
Common platform with Itanium processor (enhanced system
capability, support migration as needed)

**Intel focus on platform innovations that deliver performance,
reliability and manageability**

Platform Reliability in 64-bit Intel® Xeon™ processor-based Platforms



Detects and corrects
memory problems
automatically

Improves data
reliability and
protection

Xeon™ MP platforms add features for additional
levels of data integrity and reliability

- Memory mirroring**
- DIMM sparing
- Automatic fail-over dual channel to single channel
- ECC, DIMM scrubbing

- 32-bit CRC on PCI Express*
- Intelligent RAID with Intel® IOP332 Storage I/O Processor

- SM Bus components and features
- Memory Hot Swap
- ECC on System Bus



Other names and brands may be claimed as the property of others

**Feature of Intel® E7520 chipset only

*Third party brands and names are the property of their respective owners

Features in Itanium® 2-Based Platforms

2004 & Prior Enhancements

EPIC architecture
Enhanced Machine Check Architecture
FMAC for floating-point leadership
Largest on-die resources for demanding workloads



2005+ Planned Enhancements

Dual-core; Multi-threading
Virtualization
Power Management Technology
Demand Based Switching (DBS)
PCI Express*
Fully-buffered DIMMS (FBD) , DDR II
Enhanced System Bus Bandwidth, cache reliability, and processor performance

Future Enhancements

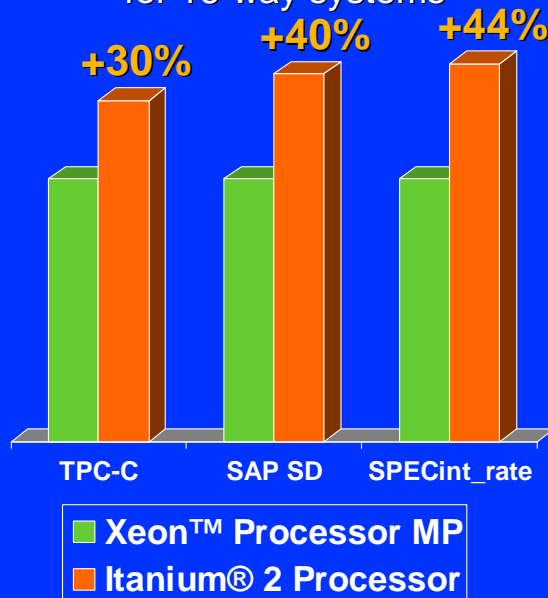
Common platform architecture with Xeon processor
Multi-core; Hardware Virtualization
Enhanced I/O, memory & RAS

Innovations deliver Intel's highest performance,
reliability and manageability solutions for the enterprise

Itanium® Architecture Differentiation

Performance

Itanium® 2 processor performance advantages for 16-way systems



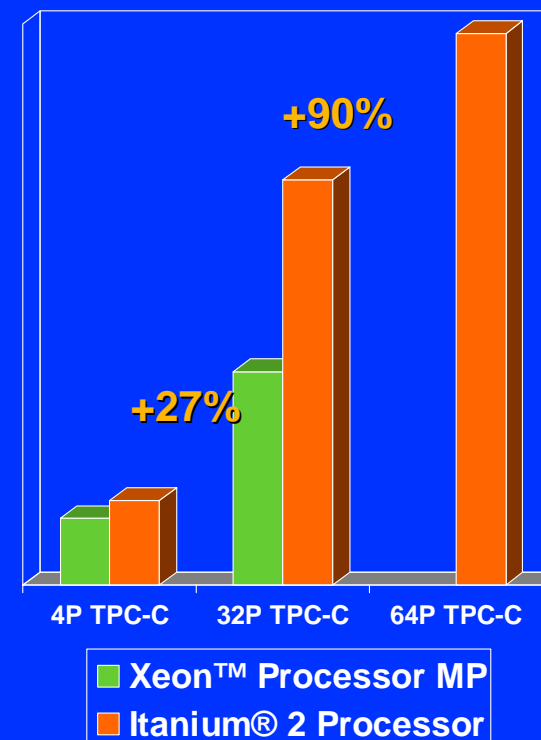
Higher Performance for Demanding Workloads

Reliability

	ITANIUM [®] 2	XEON [™]
Error recovery on data bus-ECC	✓	
Internal soft error logic check	2005	
Machine Check Architecture	✓	
Bad data containment	✓	
Cache Reliability	2005	
Lockstep support	✓	✓
Memory SDEC, retry double-bit	✓	✓
Memory spares	✓	✓
Partitioning	✓ node	✓ node

High-end RAS for RISC & Mainframe Replacement

Scalability



Outstanding Scalability

See backup for configuration details for all benchmark data.

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance.

Itanium® architecture delivers the highest performance, RAS, and scalability on IA



Product plans, descriptions, and dates are preliminary only and subject to change without notice.
 *Third party brands and names are the property of their respective owners.

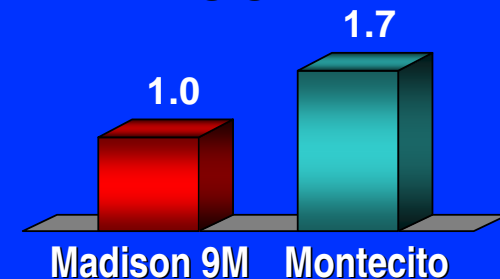


New Technologies on Montecito in '05

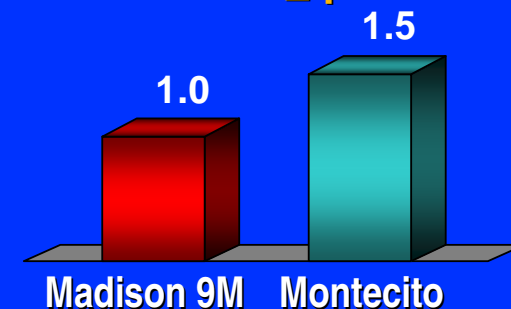
- Dual core + multi-threading
- Up to 24MB L3 cache
- Foxtan Technology
- Pellston Technology
- Demand Based Switching
- VT for Itanium® based platforms

**Over 1.5x Performance Gains
Over Madison 9M**

**Transaction Processing
4S OLTP¹**



**Floating Point Performance
2S SPEC_fp rate¹**



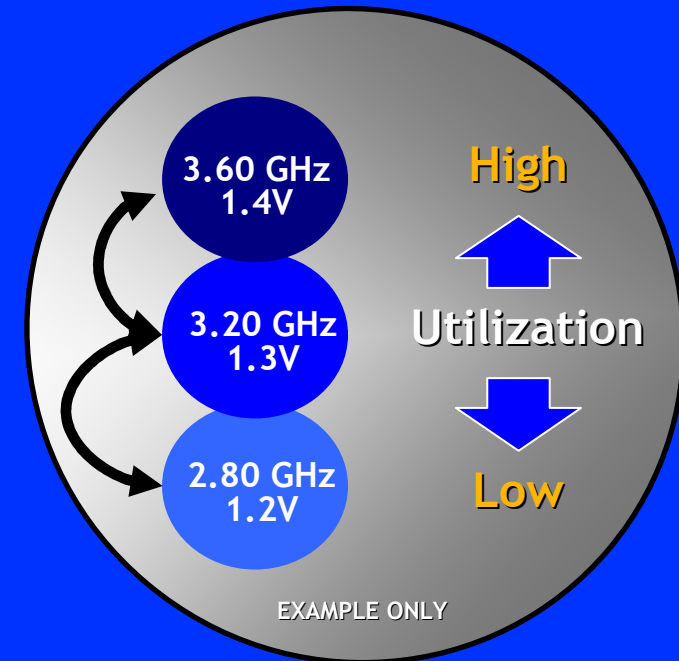
Montecito will deliver major advancements in performance, RAS, and other platform features



Product plans, descriptions, and dates are estimates only and subject to change without notice.
*Third party brands and names are the property of their respective owners.

Demand Based Switching

- Utilizes Enhanced Intel® SpeedStep® Technology
- Dynamically reduces processor speed/power based on demand
- Helps reduce system power up to 24% for typical CPU utilizations**



Lower Power = reduced cost with no impact to performance

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit <http://www.intel.com/performance/resources/limits.htm> or call (U.S.) 1-800-628-8686 or 1-916-356-3104. ** ** System based on Intel® Server Board SE7520JR2 board, 4 GB DDR2-400 memory. 24% power savings at approximately 46% CPU utilization with DBS OFF running WeBench. See backup for full system configuration. Customer results may vary depending on hardware and software configuration.

Migration to Itanium® Processor Family

(partial list, * represents Global 100 companies)

Financial



CitiStreet
A Citigroup and State Street Co

ING * Comercial America

First American Ins.

Bank of New York

Thomson Financial

Nedbank

First Trust

Healthcare



**Blue Cross/
Blue Shield**

Merck

Premera Blue Cross

Pfizer HC Solutions *

Automobile



Fiat*

Volvo

Toyota *

BMW

Manufacturing

Total Oil

Audi *

Occidental Petroleum

Marico

Saacke

Airbus UK

Energy



Total Oil*

BP

PetroChina *

Marathon Oil

Communications



**The Weather
Channel**

**CBS
Broadcasting, Inc**

**Korea
Telecom**

Motorola

Telecom Italia

Retail – consumer goods

Procter & Gamble *

Philips-Van Heusen

The Body Shop

Fuji Film



Govt / Education



CDC / LLNL

NASA

Now: 40 of Global 100 run Itanium®-based systems; Over 2700 applications



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Agenda

- Introduction and Positioning of Intel® 64-bit platforms
- Intel® High-end Desktop and Workstation platforms
- Intel® Server platforms
- **Intel® Software Tools**
- Developer Resources

Migration To 64-bit

Starting Point: 32-bit Applications Running on Intel® Xeon™ Processor

Step 1

Validate IA32 binaries to run on 64bit OS

- Ensure continued support with existing IA32 binaries
- Get to market quickly

Intel Itanium® 2 processor

64-bit Intel® Xeon™ processor

Step 2

Port and optimize to run on new 64 bit environment

- Step 1, if you decided to port
- Pick the right architecture
- May end up supporting both

1. Validate Existing 32bit Code On 64bit OS
2. Determine The Right Architecture For Your Software

Intel® Software Development Products

- **Intel® Compilers**

Best application performance on Intel processors

TTM with Intel platform releases

Complementary with Microsoft compilers

- **Intel® VTune™ Analyzers**

Quickly identify “hot spots” and how to fix them

- **Intel® Performance Libraries**

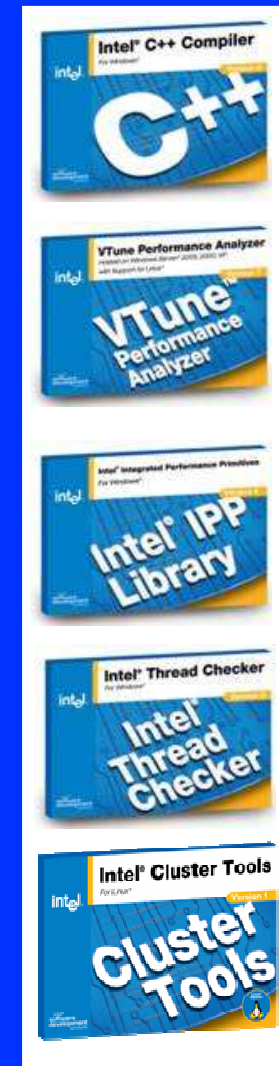
Highly optimized, ready to use building-block functions

- **Intel® Threading Tools**

Speeds, simplifies development & maintenance of threaded apps

- **Intel® Cluster Tools**

Create, analyze, optimize and deploy cluster-based applications



Intel Software Development Products for Intel® Personal Internet Client Architecture processors, Pentium® M, Pentium® 4, Intel® Xeon™ and Itanium® 2 Processors

Intel Software Support for Technology

EM64T®	Multi-core	Itanium® Processor	Mobility	HPC
<ul style="list-style-type: none"> •Compilers •VTune •IPP Library •MKL Library •Threading Tools (2H'05) •Cluster Tools •SW College 	<ul style="list-style-type: none"> •Compilers •VTune •IPP Library •MKL Library •<i>Threading Tools</i> •Cluster Tools •SW College 	<ul style="list-style-type: none"> •Compilers •VTune •IPP Library •MKL Library •Threading Tools •Cluster Tools •SW College 	<ul style="list-style-type: none"> •Compilers •VTune •IPP Library •MKL Library •Threading Tools •SW College 	<ul style="list-style-type: none"> •Compilers •VTune •<i>Cluster MKL</i> •Threading Tools •<i>Cluster Tools</i> •<i>MPI Library</i> •SW College

Intel Software Development Products and Resources for the latest Intel® platform technologies

Intel® Software Developer Dispatch

What it is:

A comprehensive CD portfolio of software tools, in-depth technical content and industry strategies

What you get:

~ Every quarter, a new Dispatch release focused in-depth on a specific Intel® platform or technology

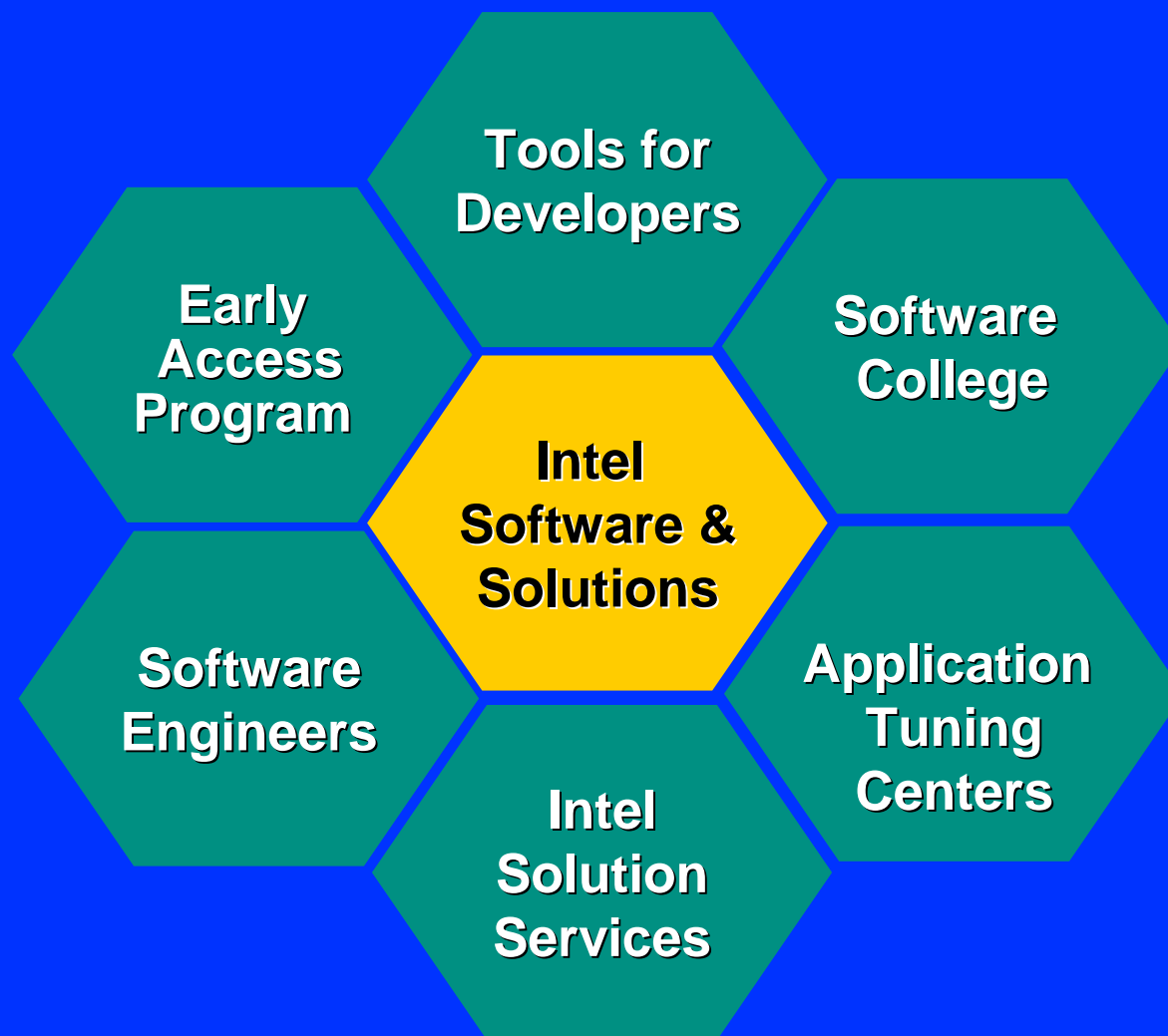
How to get it:

- Visit <http://www.intel.com/ids/swdevdispatch>
- Complete the contact information and Quick Survey
- Click submit
- Your subscription is activated!

Agenda

- Introduction and Positioning of Intel® 64-bit platforms
- Intel® High-end Desktop and Workstation platforms
- Intel® Server platforms
- Intel® Software Tools
- **Developer Resources**

Intel's Developers' Resources



Developers Port And Get To Market Quickly

Intel® Early Access Program

- Access to Intel® technology
- Early access to tools and information
- Membership includes:
 - Access to pre-release platforms
 - Access to software and testing tools
 - Training
 - Technical content, how-to articles

- Protected remote access

- Evaluate and develop safely and securely



- Benefits

- Resources to develop and market cutting-edge software solutions that run best on Intel's latest processors.
 - One company-level membership

Membership fee waived for Route64 participants!

Marketing Opportunities and Support

- **Extensive marketing and business development opportunities available once your port is completed:**
 - Intel® Developer Solutions Catalog
 - Intel quotes to support your PR
 - Case studies
 - Access to Intel's event marketing asset kit
 - Participation in selected industry events and trade shows
- **Support in your development efforts provided through:**
 - Intel Account Representatives
 - Intel® Premier Support
 - 24/7 online support

Technical Resources and Support

📌 Look for Information

Online Technical Resources

www.intel.com/IDS/eap

- Remote Access
- Leasing of platforms
- Discounts and special hardware and software offers
- Roadmaps and 'early' info and documents
- Technical content and how-to articles
- Training
- Discussion forums
- Knowledge base and FAQs
- Newsletters and spotlights

Intel Technical Resource Links:

RESOURCE	URL
Intel® Itanium® 2 Processor	http://intel.com/products/server/processors/server/itanium2/
Intel® Xeon™ Processor	http://intel.com/products/server/processors/server/xeon/index.htm
Intel® Early Access Program	http://www.intel.com/IDS/eap
Intel® Developer Services	http://www.intel.com/cd/ids/developer/asmo-na/eng/index.htm
Intel® Software College	http://www.intel.com/software/college
Intel® Software Development Tools	http://www.intel.com/software/products
Intel® Remote Access Forum	http://www.intel.com/ids/community/ra
64-bit Solutions on Intel® Architecture	http://www.intel.com/business/bss/products/server/64-bit/index.htm
Experience the Enterprise on Intel® Architecture	http://www.intel.com/IDS/expent/
End-user case Studies, testimonials	http://intel.com/business/casestudies/prodserv/index.htm
Reference Solutions and configuration guides	www.intel.com/ebusiness/products/itanium/

Summary

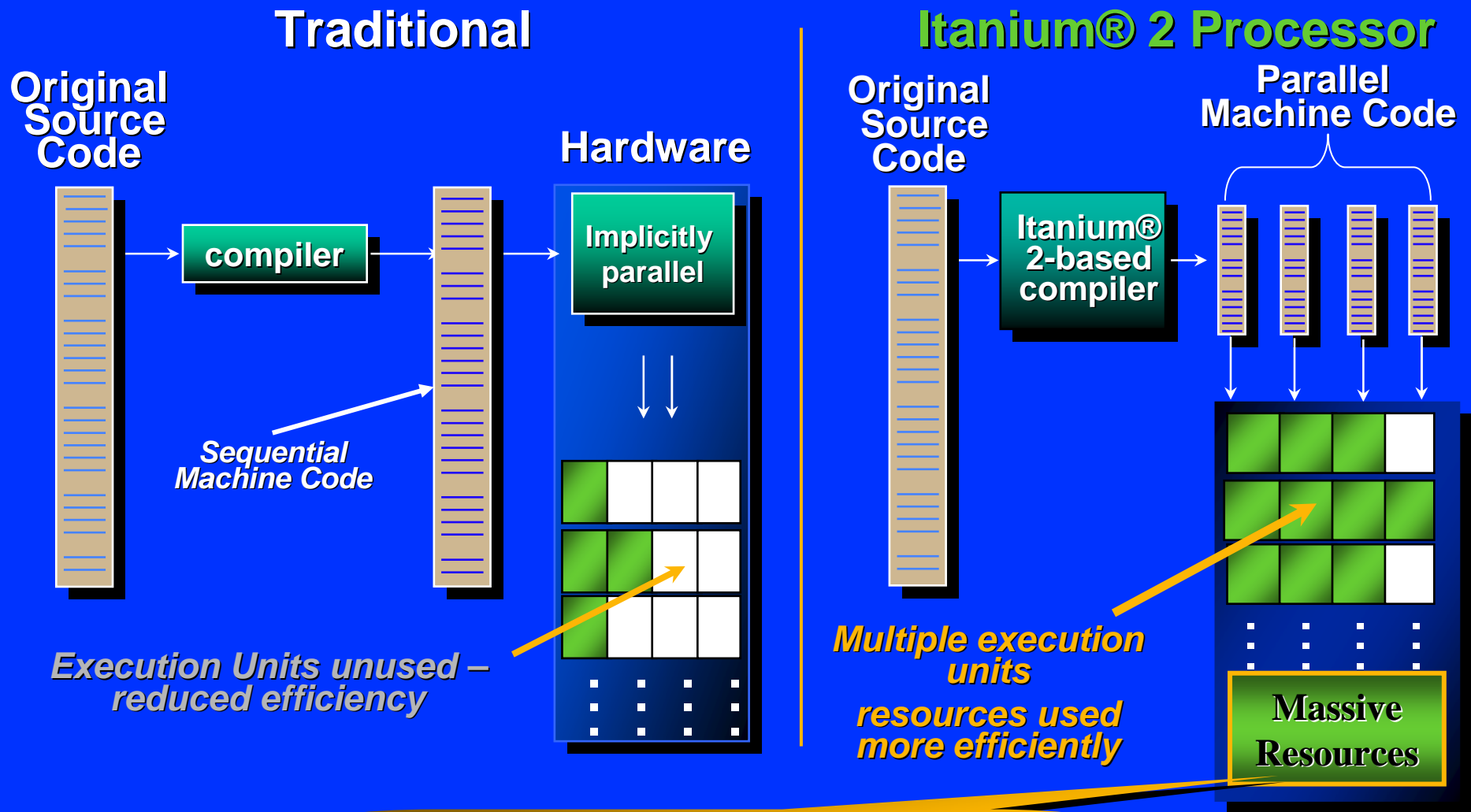
- Intel compilers are optimized for best application performance on Intel processors
- Prepare applications for support of thread parallelism with dual- and multi-core
- Make the move to 64-bits
 - If not already done so, validate existing code on 64-bit OS
 - Recompile to 64-bit Xeon™ and/or Itanium®, based on customer need

Appendix A:

Intel 64-bit Architectures

Itanium® 2 Processor/EPIC Architecture

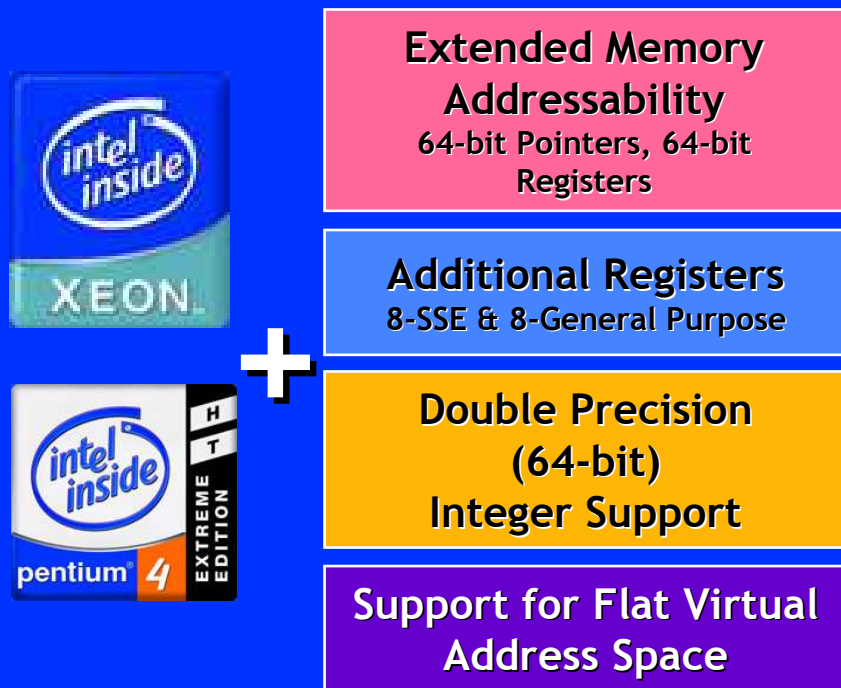
Explicit Parallelism Advantage



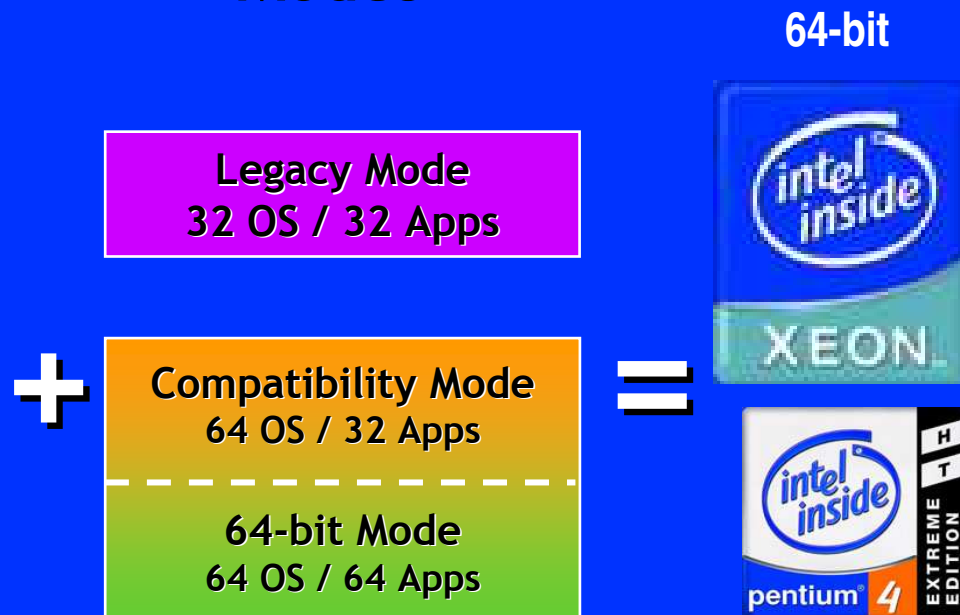
Over 256 Registers, 11 Issue Ports, a Scalable Bus, and 9MB of Level 3 Cache

What is Intel® EM64T?

Features



Modes



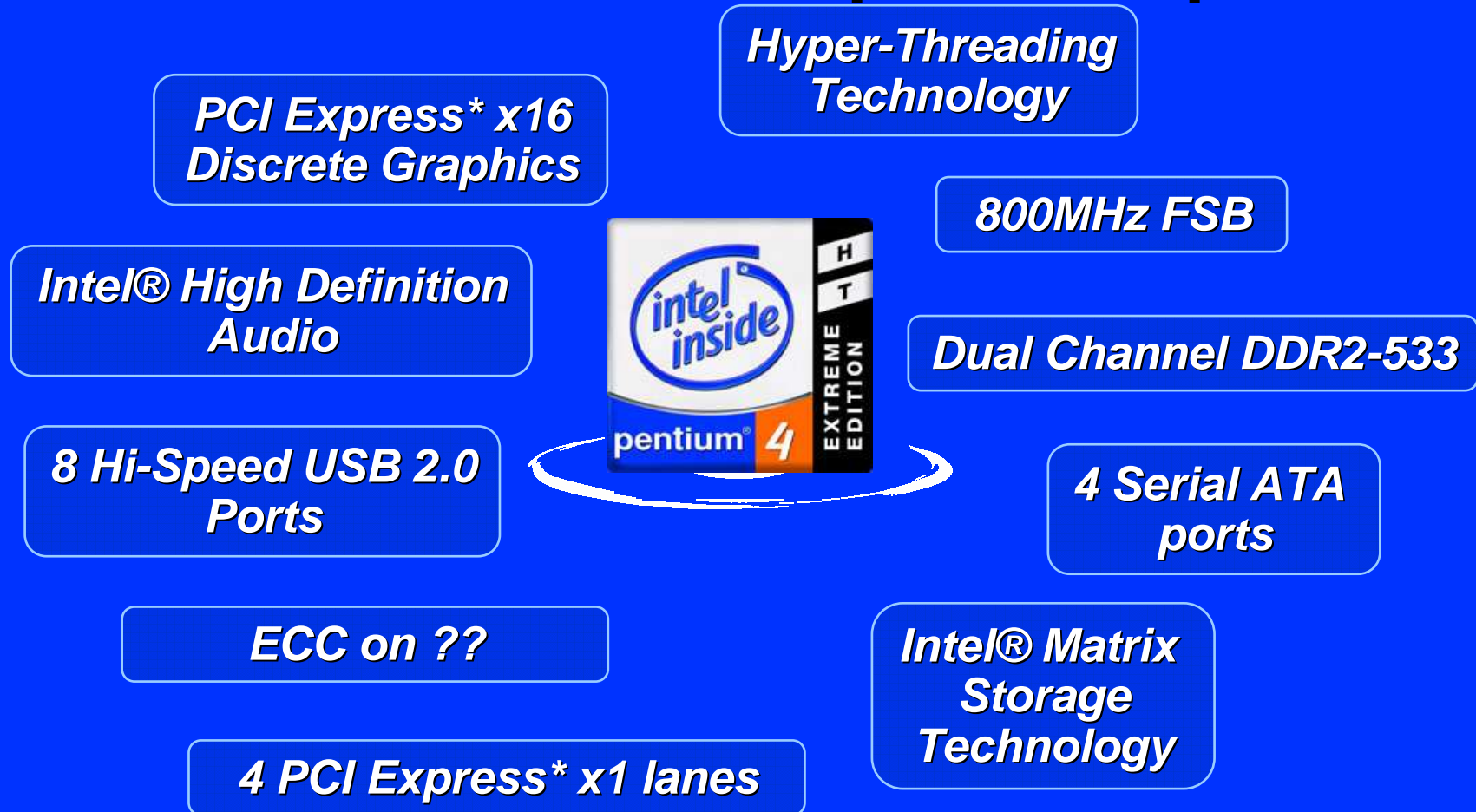
64-bit

Architectural Enhancements for 64-bit Computing

Appendix B:

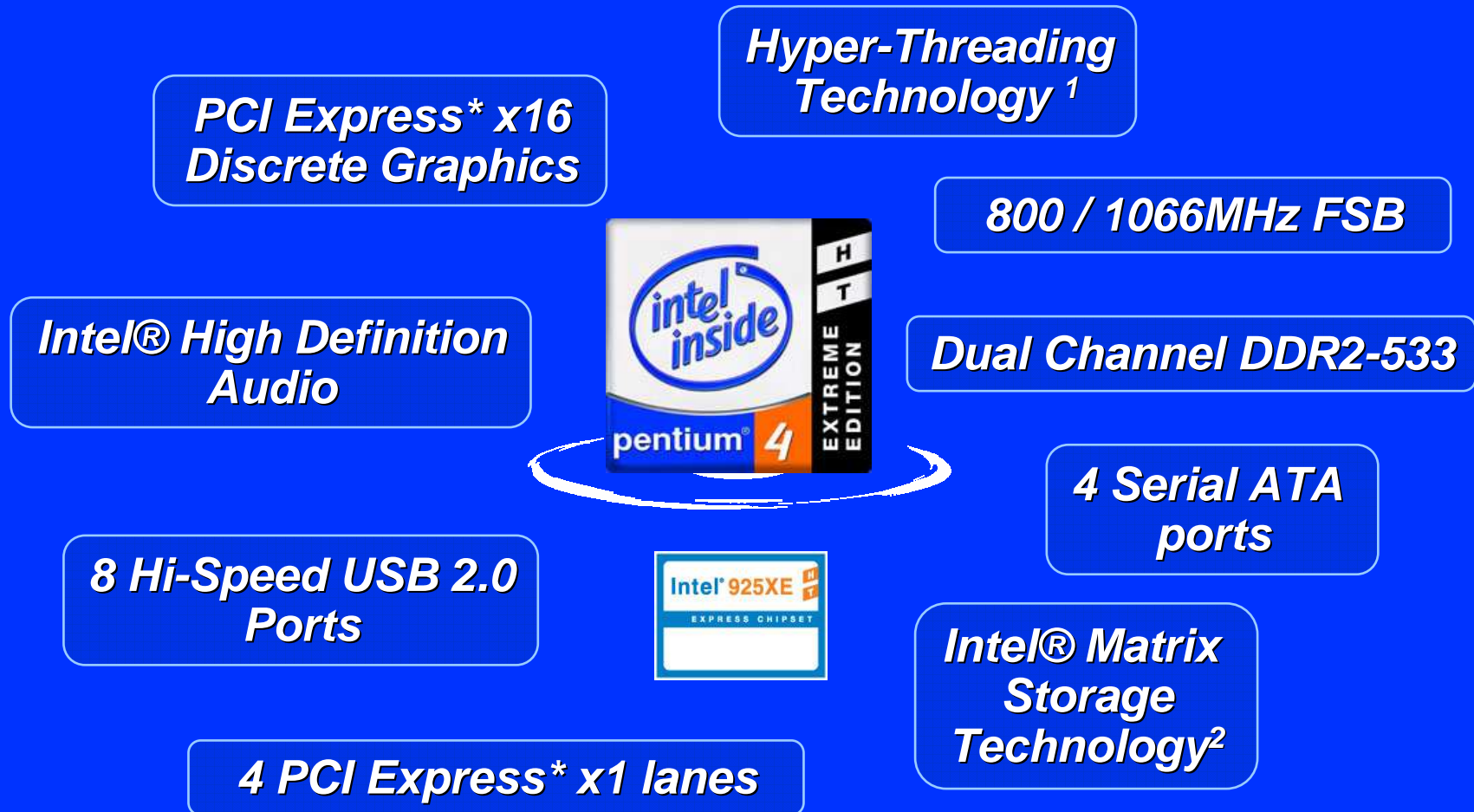
Intel 64-bit platform feature sets

Intel® Pentium® 4-based UP Workstation Platform: Intel® 925X Express Chipset



The Intel® 925X Express Chipset provides great price/performance in an entry-level workstation

Intel® Pentium® 4-based Performance Desktop Platform: Intel® 925XE Express Chipset



The Intel® 925XE Express Chipset provides leading edge technologies & performance

The DP Workstation Platform: Intel® E7525 Chipset

Next Generation Graphics

PCI Express* x16 delivers twice the bandwidth of AGP8x

64-bit Extensions

Intel® EM64T extends memory addressability beyond 4 gigabytes

Faster DDR2 Memory

50% memory bandwidth increase, up to 40% power savings

Reduced Power Consumption

DBS with Enhanced Intel SpeedStep® Technology enables up to 25% power consumption savings

New Enterprise Processor

Intel® Xeon™ processor 3.60 GHz based on 90 nm process technology



Next Generation I/O

PCI Express*: reduces system latency with up to 3.8x bandwidth vs PCI-X at 8GBs

Major Architectural Enhancements

SSE3 & HT Technology Enhancements enable up to 30% increase in multimedia application performance

Faster System Bus

800 MHz system bus enables balanced platform – 50% faster than previous generation

Significant new technologies deliver performance, improved TCO, and headroom

New Intel® Xeon™ server platform

RAS

Reliability
Availability
Serviceability

Advanced new chipsets

Intel® E7520 and E7320: New RAS features at mainstream price points

Intelligent RAID

Intel® IOP332 IO processor
15% faster RAID5 writes
compared to previous
generation of I/O processors

Next Generation I/O BUS

PCI Express*: reduces system
latency with up to 3.8x bandwidth vs
PCI-X at 8GBs; x16 graphics for
workstations

64-bit Extensions

Intel® EM64T extends memory
addressability beyond 4 gigabytes



Major Architectural Enhancements

SSE3 & HT Technology
Enhancements enable up to 30%
increase server application
performance

Power Consumption

Demand Based Switching

DBS enables up to 25% power
consumption savings

Faster Memory

DDR2: 50% memory bandwidth
increase, up to 40% power savings

Faster System Bus

800 MHz system bus enables
balanced platform – 50% faster
than previous generation

Enterprise Processor

Intel® Xeon processor 3.60
GHz based on 90 nm process

Headroom

* Other names and brands may be claimed
as the property of others

Performance disclaimer: Data source is Intel
Corporation, July 2004. Customer results may
vary depending on hardware and software
configuration.

Performance

The New Intel® Xeon™ MP Platform:

A Complete, Reliable and Scalable Platform Solution

RAS

Reliability
Availability
Serviceability

Advanced new chipsets

Intel® E8500 chipset: New RAS features at mainstream price points; Memory RAID/mirroring/hot-plug, ECC on system bus

Intelligent RAID

Intel® IOP332 IO processor
15% faster RAID5 writes compared to previous generation of I/O processors

Next Generation I/O BUS

PCI Express*: reduces system latency with up to 3.8x bandwidth vs PCI-X at 8GBs

64-bit Extensions

Intel® EM64T extends flat memory addressability beyond 4 gigabytes

Major Architectural Enhancements

SSE3 & HT Technology Enhancements enable up to 30% increase server application performance

Lower Power Consumption

Demand Based Switching

DBS enables up to 25% power consumption savings

Faster Memory

DDR2: 50% memory bandwidth increase, up to 40% power savings

Faster System Bus

667 MHz system bus enables balanced platform – 66% faster than previous generation

Enterprise Processor

Intel® Xeon processor MP with 8MB cache based on 90 nm process



Headroom

* Other names and brands may be claimed as the property of others

Performance disclaimer: Data source is Intel Corporation, July 2004. Customer results may vary depending on hardware and software configuration.

Performance

Itanium® 2 Processor 9M Line-up

Max Performance

Itanium® 2 Processor 1.70GHz, 9MB, 130W, MP capable

- Upgrade to the previous 1.5GHz, 6MB offering
- Up to 25% performance increase over 2003 MP platforms*
 - 6.8 GFLOPS peak, 54.4 GB/s cache bandwidth per CPU
- Maximum performance for large scale enterprise deployments

Best \$/FLOP

Itanium® 2 Processor 1.60GHz, 3MB, 99W, DP capable

- Upgrade to the previous 1.40GHz, 3MB offering
- Up to 40% performance increase for 2003 DP platforms*
- Price / performance leader for HPC

Lower Power

Low Voltage Itanium® 2 Processor, 1.3GHz, 3MB, 62W, DP capable

- Upgrade to the previous 1.0GHz, 1.5MB offering
- Up to 40% performance increase for 2003 DP platforms*
- Price & power optimized for denser form factors and front end, network edge apps which complement large scale enterprise deployments

New Itanium® 2 Processors for a range of platform needs



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*Based on Intel internal measurements of SPEC benchmarks.